

MOTORISTS WASTE MILLIONS OF DOLLARS YEARLY ON PISTON RINGS

EFFICIENCY GAINED ONLY WHEN RINGS FIT CAR CYLINDERS

Smooth Running System Prevents Gas and Oil From Leaking.

INCREASES POWER

Proper Installation Will Give Driver Over 20,000 Miles Wear.

There is nothing mysterious about piston rings used in automobile engines, even though repairmen will tell you that new rings of a certain sort will elevate your engine into some new state in which it produces twice as much power and speed as before. There is a good deal of misinformation about piston rings, and because of it automobile owners spend millions each year for such parts, in many cases getting no results from the expenditure.

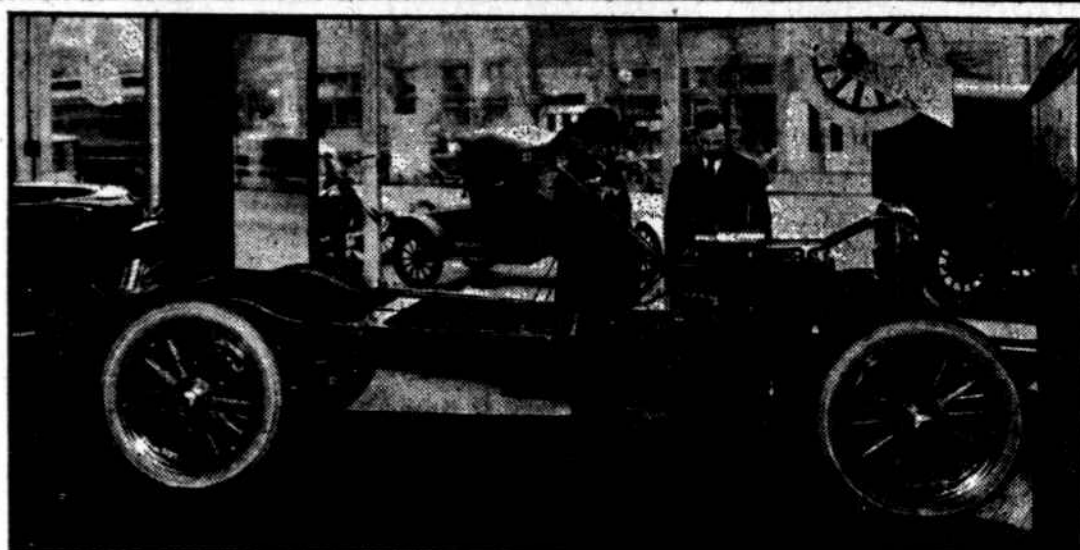
Piston rings are supposed to pack the cylinder, so that gas does not leak downward and oil upward. In order to be an ideal device it must do this without exerting too much pressure against the cylinder wall and the pressure must be evenly distributed all around. The ring must fit the cylinder perfectly; it must fit its groove in the piston so that it will be neither too tight nor too loose.

Give Good Service.
Such piston rings will run perhaps 20,000 or 30,000 miles, but a time must come when the rings no longer make a gas-tight joint. It then is necessary to find out why the rings no longer fit well. The average repair man will tell you that when wear takes place only the rings become worn, so that all that is necessary to put the engine in first-class shape is to replace the piston rings. How the repair man knows is one of the mysteries of this world. The fact is that no one can tell whether the rings are worn or whether the cylinders are worn or just what the condition of these parts is unless the parts themselves are examined and measured.

It is natural to suppose that after a long period the wear is not confined to any one part. Experience has shown that cylinders become worn just as readily as the rings. But the average repair man assumes that for his especial benefit the cylinders have worn uniformly round, which, strange to say, does not happen in service. Cylinders wear oval or they score or they have high spots here and there. They are not perfectly round after 10,000 or 20,000 miles.

Wear Uniformly.
At the same time that the cylinders do not wear round they also do not wear uniformly along the length. The piston rings do the wearing, and the rings only travel a certain distance in the cylinder. This is called the ring travel. The wear then takes place for a certain vertical distance, leaving at the top and bottom of the cylinder a bore practically equal to the original bore of the cylinder. There may be some wear at the top and bottom, but it is exceedingly slight compared with the ring travel wear. In attempting to install oversize rings in a cylinder that is worn the

A Chassis Unique



Studebaker special six on display at the show rooms of the Commercial Auto and Supply Company, 817-19 Fourteenth street northwest. This type car is considered one of the best for service and durability.

attempt is made to get a larger ring into the original bore, for in what other way can you get the ring into the worn area of the cylinder? If the ring ends are filed the ring then is made smaller and it is no longer oversize.

This explains a great deal of trouble owners have because so-called oversize rings were installed in the cylinders. In the first place the cylinders should be made true either by grinding or some other process, and new rings obtained to fit the new bore. In this way only can the ring be made to do its job. To say that new rings will lap themselves into an oval bore is wrong, for they will not, nor will new rings in worn cylinders take the shape presented by score marks or hard spots in the cylinder metal.

Fit Them Properly.
The type of ring has something to do with results, but not so much as the average shop is inclined to think. The fit of the ring in the cylinder means more than the design of the ring itself. Patent rings are helpful, but a patent ring poorly fitted will not give good service, whereas an ordinary split ring well fitted gives perfect results. The ring must be so designed that it presses evenly against the cylinder all around, its metal must not be too hard, and, above all, it must be fitted to its groove in the piston, so as to be able to do its work properly. This means the groove must be true in a lathe to the exact size of the new ring.

When your engine lacks power, when the compression is poor, when it pumps oil and uses too much fuel, it usually is a sign that the rings do not fit properly, but it is not a sign that new rings alone will cure these troubles. You must find out the condition of the cylinders into which the rings fit.

Dawson Selected To Aid Campbell In Selling Branch

Effective April 1, C. E. Dawson, formerly sales manager, Chevrolet Motor Company of Michigan, Flint, Mich., has been appointed assistant to General Sales Manager Colin Campbell, Chevrolet Motor Company, Detroit. M. D. Douglas, formerly assistant sales manager at Flint, has been appointed sales manager to succeed Mr. Dawson.

EXPORTED MOTOR CARS TOTAL 41,392

Latin-American Countries Lead With an Average Of 33.1 Per Cent.

During the year just ended 41,392 motorcars were exported from the United States. Of this number Latin American countries took 33.1 per cent; British North America, 15.4; Asiatic countries, 14.5; Europe, 13.1; Oceania, 11.1; non-contiguous territory of the United States, 8.8, and Africa, 3.7.

Of the 13,729 cars exported to Latin America 10,207, or 74.5 per cent, went to Mexico and Cuba; 454, or 3.3 per cent, to Central America and the West Indies, exclusive of Cuba and Porto Rico, and 2,068, or 15 per cent, to South American countries. Export of 12 cars going to Newfoundland and Labrador all the shipments to British North America (6,398) went to Canada.

Japan, the Dutch East Indies, British India and China took 4,627, or 78.3 per cent, of all shipments to Asia. The United Kingdom, Sweden, Belgium and Holland received 3,549 cars, or 65 per cent, of all exports to Europe. Australia and New Zealand together took 4,588 cars, all but 37 of the shipments to Oceania. Eighty-two cars went to Alaska, the rest of the 3,645 cars going to non-contiguous United States territory were taken by Hawaii, Porto Rico and the Philippines. Of 5,526 cars shipped to Africa 42.8 per cent, or 654 cars, were taken by the South African Union.

Eighty-three per cent of all the motorcar exports were bought by eighteen countries, the relative position of each of the eighteen changing continually during the year. The Philippines, for example, first on the list in January was last in December, while Australia which was second in January and tenth in June was first in December. Japan, the United Kingdom, Belgium and Porto Rico all took more cars in December than in January.

The final order of the six largest importing countries for the full year was:

Standing of Leaders.	Cars
Mexico.....	8,232
Canada.....	6,398
Australia.....	3,740
Japan.....	2,062
Hawaii.....	1,984
Cuba.....	1,975

HOW AUTOMOBILE DEPRECIATES TOLD

Better Known Makes Have More Chance for Resale, Claimed.

Every owner of an automobile who has felt the desire to own a new car knows that the depreciation on his used car has been far greater than he ever expected it to be. The reason the car you are now driving has depreciated so much is because you have had to "liquidate" just as the manufacturer of new cars has had to do. You had to take loss automatically and the value of your car has dropped just about as the prices of new cars have dropped. But some cars have depreciated considerably more than others and there are sound reasons for this.

The better known makes having a wide sale depreciate less than the lesser known makes because the dealer who buys the former can effect a quick turnover. He can sell the car in a short time and thereby does not have to consider overhead charges, etc., over a long period. The car that happens to have a very well by the general public, but that car happens to be made of units made by specialists, you stand a chance of getting a higher value, because the units makers continue to offer service and advertise the units.

In some of the larger cities the dealers have returned to prewar methods of basing used car values. This gives a car one year old a depreciation of 40 per cent if it is in good condition and an additional 10 per cent if it needs much repair work. If the car happens to have a bad name the depreciation may run as high as 60 per cent the first year. Some makes depreciate only about 30 per cent the first year. When the motorist hears these figures he should see the advantage of running his car over a reasonable period before trading, or better still, avoiding the trade altogether and selling the used car to another individual and working with all cash.

The used car market right now is in pretty bad shape, for the dealers have about all the cars they are able to handle and do not want any more. This means that there is an excess of used cars and whenever there is an excess of anything values go down. The demand for used cars will be fairly high during the spring months, but if the dealer is required to do the used car selling he must naturally figure on a profit. This profit can be made by the owner as well if he will only take the trouble to make the sale himself.

New car prices have just about reached bottom, so the man who holds out for still lower prices is going to be disappointed. There may be one or two cuts further, but they will not amount to very much and they will come from unimportant concerns.

The only way to get the most value for a used car is to sell it in good condition. This advice goes for the dealer as well as for the owner. The used car has received a black eye because so many "doped" cars have been sold. It is because of this that many of the important dealers sell their used cars only after they have been thoroughly overhauled.

For the man who is in the market for a used car this is an opportune time, because 1921 and 1920 models can be bought at very low prices. The purchaser first should consider these two things in buying a used car: its age in years and miles and its possible resale value. The real worth of a used car can be judged by the mileage it has run, but there are so many ways of covering this that no man can take the seller's word for it. A car that is five years old becomes a risky proposition except if it is a large car of expensive make. When you go to six and seven-year cars in the low and medium price range you are dealing with values close to junk unless your mechanical knowledge tells you otherwise.

Ford's Affiliation With Leland Will Aid Motor Owner

"Coincident with the purchase of the Lincoln Company by Henry Ford comes the announcement that Lincoln cars will now be handled through authorized Ford dealers throughout the United States," says a local motorist.

"What this means to the Lincoln owner is better understood when it is realized that there are more than 8,000 Ford dealers. Within a short time the owner of a Lincoln will be able to tour the country from end to end, knowing that if his car ever needs expert adjustments this service will be instantly available.

"Probably no transaction in the automobile industry since its inception has created the comment and interest that followed Henry Ford's bid of \$8,000,000 for the Lincoln Motor Company and marked its sale on February 4.

"This merger brings together two men who are recognized as unquestioned leaders in their respective fields, Henry Ford as master of quantity production, and Henry Leland as master of the finest mechanical products.

"Although an increased output will of course be made necessary by the wider distribution, there will be no change in the Leland manufacturing standards."

LANGUAGE OF CARS ROARS TO VICTORY AS GENIUS ENTERS

Every Auto Owns a Voice, Experts of This Firm Discover.

If you would learn the language of the automobile, let your motor talk to you by means of its own private telephone exchange.

It can be done. Every car is equipped with an instrument to transmit its own voice, an instrument as old as automobiles, and as much needed as gasoline. The gear shifting lever is the telephone on your car. You have probably never used it for any other purpose than changing speeds. But, according to a local Maxwell enthusiast, this unassuming metal rod serves a much different and equally necessary role in the testing room of the Maxwell plants.

Picture an immense room perhaps 200 by 250 feet in a small corner of the space occupied by the Maxwell Motor Corporation in their Detroit factory. There are long lanes of wooden stands on which are mounted several hundred gasoline motors, each running under its own power at a speed that would drive a car about thirty miles per hour. They run this way for hours—eight, ten, sometimes longer. The roar in the brick-walled room is constant and all-enveloping. In here the human voice must be pitched at just the right note even to be distinguished above the motor tumult.

There are inspectors in corps. Each has a certain number of motors to attend to. Not all is disclosed to him by what he can see of the motor's work. He depends upon his ears to tell him of smooth running or imperfect action. He places his ear at the top of the gear-shifting lever. Deftly the roar and rumbling of the ensemble of engines there comes to him precisely what this one motor has to say of its inner self.

The perfect motor is distinguished by a low, musical humming. Foreign noises, however slight, are indicative of improper adjustment. Before any motor can pass the educated ear of the inspector it must be in perfect voice without trace of complaint.

The inspector, of course, must have absolute command of the language of the motor. He must translate what he hears into shop talk, that expert mechanics may correct any possible errors disclosed.

Much depends on these inspectors—the reputation of the manufacturer and the car dealer, the satisfaction and service given the car buyer. Highest grade materials are wasted unless the inspection system is perfect and complete.

Naturally the "telephone" men in the block room are picked there only after years of training. They must know the precise meaning of every sound. There can be no guesswork. Their diagnoses are worthless and costly unless accurate. According to experts you can hear what the motor in your own car has to say, but he wouldn't advise you to make adjustments thereupon unless you know the language.

ADVICE TO SPRING MOTOR CLEANERS

'Drag Ye Old Oil Can;' Then Prepare for Big Job.

Whether your car has been in use all winter or whether it has been jacked up, it will need a certain amount of attention to put it in fit condition to run. The car that has been on jacks will need a generous cleaning, after which all oil compartments should be drained and cleaned and refilled with fresh lubricant. The gear compounds should be fairly heavy for warm weather work. Greases should be used for spring shackles and other parts provided with suitable cups or pressure nipples. A car that has been jacked up all winter does not deteriorate unless rust has set in, but if you were thoughtful you would have provided against this in the fall by greasing those parts. However, rust is removable by means of kerosene or special rust removers. All bearings should be repacked with grease. This applies only to chassis bearings, such as those in the wheels, steering knuckle pins, perhaps, etc. Brakes should be looked over and the linkages oiled copiously. Lubrication of the entire chassis and slight adjustment here and there are all that really will be needed. The tires, if they were properly stored, perhaps have not deteriorated much, but if they were left on the car in a cold garage they undoubtedly will have water and sediment in the crank case. The gasoline line, vacuum tank and main tank will call for a good cleaning. Also flush the water system thoroughly. It may be necessary to supply new hose connections.

The ignition and carburetor may need little attention, except perhaps the latter unit, which may have a leaner adjustment for warm weather.

A car that has been driven all winter must be gone over very thoroughly. The procedure is somewhat the same as for the car in storage except that adjustments will be necessary to greater degree. Water and mud no doubt have done their damage in rusting spring leaves and in covering the underneath parts of the chassis. A good cleaning is therefore very essential. The change to different oils likewise is quite necessary. There is no need to do any more to the engine than remove the oil pan for a good cleaning. Do not try to change oil simply by draining, as this is not effective enough. After the winter you will find a good quantity of water and sediment in the crank case. The gasoline line, vacuum tank and main tank will call for a good cleaning. Also flush the water system thoroughly. It may be necessary to supply new hose connections.

Small Motor Car Output Increases, Survey Indicates

A comprehensive inquiry as to the average number of passengers carried in an automobile shows some interesting facts. The country-wide average is one and seven-tenths. Personal observations at six cities show that even on Sunday, when the number of passengers carried per car might naturally be supposed to be the largest, the average is less than four. On week days, the average corresponds very closely with the average for the country—less than two per car.

This is only another indication of the reason for the steadily increasing popularity of the small car. Aside from the most important considerations of low first cost, low maintenance and ease of repair because of standardization of parts, the car that holds the smallest number of people is of the greatest use the greatest part of the time. And since small cars, low in price, but completely equipped with the comforts and conveniences that the modern motorist requires, have been put on the market, their success has been growing every year.

Conspicuous examples of the policy of important manufacturers in discontinuing the manufacture of the large car and concentrating on the production of smaller and cheaper cars are sufficiently numerous to indicate that the automobile factories are keeping a close eye on the trend of the times.

PLANS 25-STORY AUTO HOSTELRY

Chicago Hotel to Have Automatic System for Its Cars.

A twenty-five-story garage in the heart of the loop will assist in solving Chicago's parking problem, according to plans completed by architects, on which, it is announced, work will start within the next sixty days. Similar motor hotels are planned for New York and Cleveland.

The building, with a 72-foot frontage on Lake street and a depth of 140 feet, will house 1110 automobiles on its 25 floors, the architects say. It will be 200 feet high, the limit allowed by city ordinance. The cost is estimated at \$1,200,000.

The features of the motor hotel will be the automatic handling of the cars. From the time the owner delivers his machine at the door in the morning until it is returned to him at night no hand will touch it unless it needs repairs or supplies. Seventeen automatic elevators, each with a capacity for six automobiles, and all operated by one girl sitting at a desk in the lobby, will distribute the cars to the proper floors. Tilting floors, operated by compressed air, will automatically unload the elevators and shunt the machines into their allotted booths, which will be mounted on wheels, to slide out of the way. In the evening the process will be reversed.

Special rates are planned for theatergoers and shoppers.

Old Spanish Trail By Tourist Camp Leads to Beauty

BROWNSVILLE, Tex., April 1.—Ing planned for this city will be located in one of the most beautiful spots the city affords. The site selected is at the east end of West Brownsville Lake, just off the paved highway and is on the route of the Old Spanish Trail. A fine grove of shade trees affords protection from the sun and the ground is richly carpeted with Bermuda grass. Nearby are fragrant orange groves and some of the finest homes in the city are in the immediate vicinity of the camp site. The climate will permit of outdoor life nearly the entire year.

Brownsville Improvement Company and the work of preparing the site will start at once. A furnace for cooking, as well as chairs and tables will be placed under a shelter in case of inclement weather, while city water and electric lights will be provided. A bath house will be built, containing sanitary toilets and shower baths for both men and women. A fence will surround the camp.

Many motorists come to Brownsville with the intention of camping and enjoying the equable climate, but owing to the lack of a suitable camp site, they have been forced to leave or obtain rooms in the city, but they will now find a tourist camp that will be the equal of any in the State. The climate will permit of outdoor life nearly the entire year.



All of the Beauty Is Not on the Outside

There is a beauty in Reos that does not appear on the surface. You must look beyond the broadcloth upholstery, and beneath the many coats of paint and varnish to discover that quality that is Reo. These Closed Bodies—the Four Passenger Coupe and Five Passenger Sedan are full-aluminum construction. Which is to say they are the last word on fine coach work.

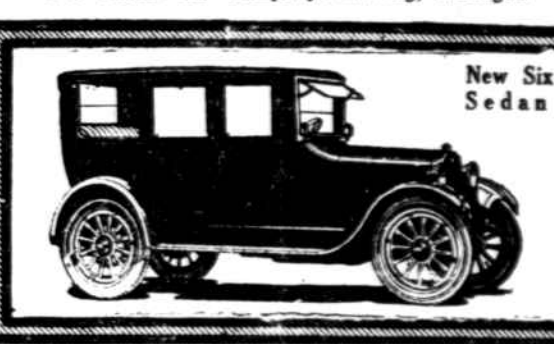
No other metal or material can equal Aluminum for this service. Of that we assure you from the fullness of our long experience.

Only a body of Full-aluminum construction—and, may we add, of Reo sturdiness—can give you that satisfaction you expect.

Price in f. o. b. Lansing, plus Federal Tax

THE TREW MOTOR CO.
14th Street at P. Telephone Main 4173

Reo Motor Car Company, Lansing, Michigan



New Six Sedan

Special rates are planned for theatergoers and shoppers.

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"Built Like a Watch"

For hundreds of years, to say that a machine of any kind was "built like a watch" was equivalent to saying that it was mechanically perfect. The beautiful Elgin Six earned this coveted slogan because of its faultless construction.



Delivered in Washington

Touring.....	\$1,400
Roadster.....	\$1,400
Sedan.....	\$1,825
Coupe.....	\$1,825
Sport Touring Model.....	\$1,450

Among the many desirable features in the New Elgin Six are, new enclosed motor; cord tires; an adjustable steering column support which enables driver to steer wheel at the angle most suited to his needs; adjustable clutch and brake pedals; V-type radiator; valve-in-head motor, etc.

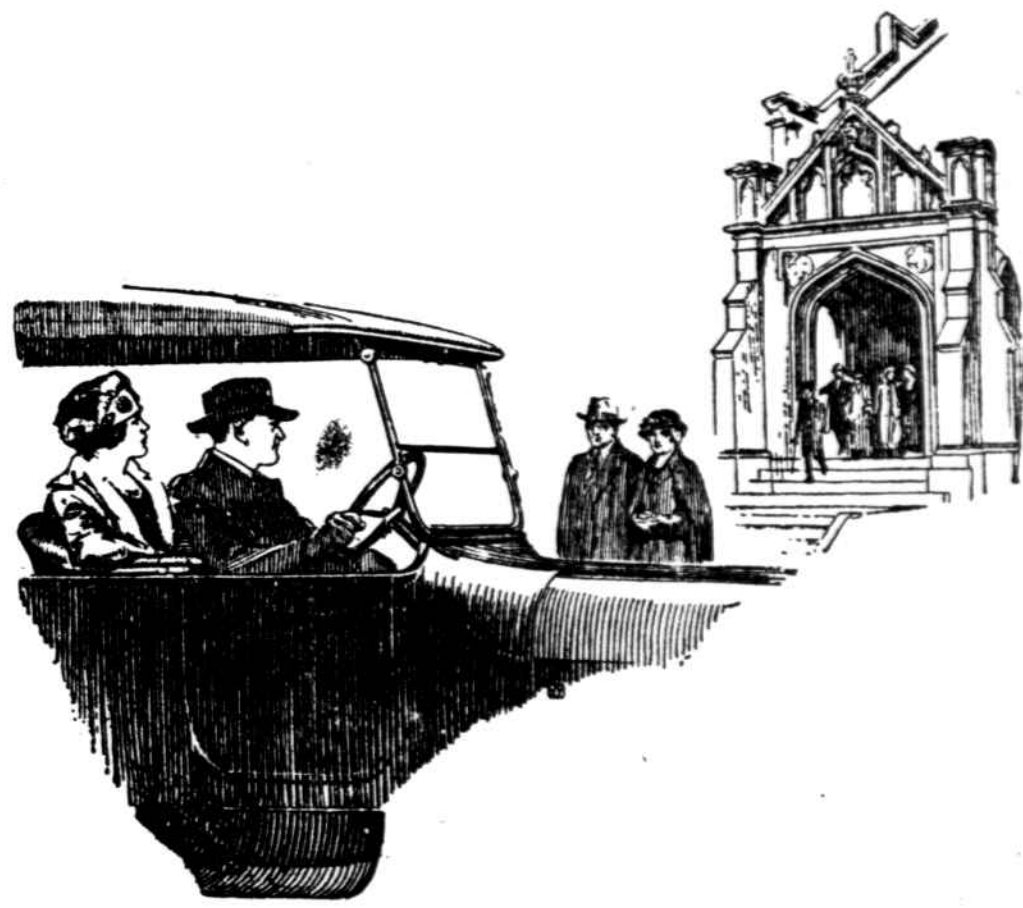
The dependability of the Elgin—the sure-fire manner in which it gets under way, its low gasoline consumption, its luxurious upholstery and pleasing design place it at the very top of moderately-priced motor cars.

Powell Motor Co.

1821 14th St. N. W.

Over 700,000 owners

DODGE BROTHERS MOTOR CAR



Sedan, \$1,440. Coupe, \$1,380. Touring Car, \$880. Roadster, \$860. Panel Business Car, \$980. Screen Business Car, \$880. All prices F. O. B. factory.

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